

PROCEEDINGS OF LEARNED SOCIETIES.

ROYAL SOCIETY.

May 4, 1871.—Sir Philip Grey-Egerton, Bart., Vice-President,
in the Chair.

“On the Structure and Affinities of *Gygnia annulata*, Dunc., with Remarks upon the persistence of Palæozoic Types of Madreporaria.” By P. MARTIN DUNCAN, M.B. Lond., F.R.S., Professor of Geology in King’s College, London.

The dredging-expedition which searched the sea-floor in the track of the Gulf-stream of 1868, yielded, amongst other interesting Madreporaria, a form which has been described by Count Pourtales under the name of *Haplophyllia paradoxa*, and which was decided by him to belong to the section Rugosa.

The last expedition of the ‘Porcupine,’ under the supervision of Dr. Carpenter, F.R.S., and Mr. J. Gwyn Jeffreys, F.R.S., obtained, off the Adventure Bank in the Mediterranean, many specimens of a coral which has very remarkable structures and affinities. The species is described under the name of *Gygnia annulata*, Dunc. The necessity of including it amongst the Rugosa and in the same family, the *Cyathoxonidæ*, as *Haplophyllia paradoxa* is shown.

Having this proof of the persistence of the rugose type from the Palæozoic seas to the present, the affinities of some so-called anomalous genera of Midtertiary and Secondary deposits are critically examined. The Australian tertiary genus *Conosmilina*, three of whose species have strong structural resemblance to the Rugosa, is determined to be allied to the *Stauridæ*, and especially to the Permian genus *Polycælia*. The Secondary and Tertiary genera with hexamerous, octomerous, or tetramerous and decamerous septal arrangements are noticed, and the rugose characteristics of many lower Liassic and Rhætic species are examined.

The impossibility of maintaining the distinctness of the Palæozoic and Neozoic coral-faunas is asserted; and it is attempted to prove that whilst some rugose types have persisted, hexamerous types have originated from others, and have occasionally reverted to the original tetramerous or octomerous types, and that the species of corals with the confused and irregular septal members so characteristic of the lowest Neozoic strata descended from those Rugosa which have an indefinite arrangement of the septa.

The relation between the Australian Tertiary and recent faunas, and those of the later Palæozoic and early Neozoic in Europe, is noticed, and also the long-continued biological alliances between the coral-faunas of the two sides of the Atlantic Ocean.